

REMARKS

The courteous interview granted Applicants' undersigned attorney on January 14, 2003 is hereby respectfully acknowledged.

I. Status of the claims

A. Claims 1-59

Claims 1-59 are currently pending. Claims 4, 13, and 57 are cancelled without prejudice to or disclaimer of the subject matter claimed therein. Claim 19 has been amended to correct an obvious typographical error. Claims 1-3, 6-12, 16, 18, 34, 39-48, 50-54, 58, and 59 have been amended. Support for these amendments may be found in the specification as follows:

Support for the amendments to claim 1 may be found at page 7, lines 25-28.

Support for the amendments to claim 2 may be found at page 5, lines 26-27.

Support for the amendments to claim 3 may be found at page 5, lines 30-31.

Support for the amendments to claim 6 may be found at page 6, lines 12-14.

Support for the amendments to claim 7 may be found at page 9, lines 1-18.

Support for the amendments to claims 8-12 may be found at page 7, lines 21-25, and in Table 1, page 8.

Support for the amendments to claim 16 may be found at page 9, line 22 through page 10, line 2.

Support for the amendments to claim 18 may be found at page 7, lines 21-25, and in Table 1, page 8.

Support for the amendments to claim 34 may be found at page 4, lines 8-10.

Support for the amendments to claim 39 may be found at page 5, line 32 through page 6, line 3.

Support for the amendments to claim 40 may be found at page 7, lines 25-28 and at page 8, line 19.

Support for the amendments to claims 41 and 42 may be found at page 9, line 22 through page 10, line 2.

Support for the amendments to claim 43 may be found at page 7, lines 21-25, and in Table 1, page 8.

Support for the amendments to claims 44 may be found at page 9, line 22 through page 10, line 2.

Support for the amendments to claim 45 may be found at page 7, lines 21-25, and in Table 1, page 8.

Support for the amendments to claim 46 may be found at page 9, line 22 through page 10, line 2.

Support for the amendments to claim 47 may be found at page 7, lines 21-28 and page 8, line 19.

Support for the amendments to claim 48 may be found at page 9, line 22 through page 10, line 2.

Support for the amendments to claim 50 may be found at page 5, line 26-31.

Support for the amendments to claim 51 may be found at page 7, lines 21-25, and in Table 1, page 8.

Support for the amendments to claim 52 may be found at page 7, lines 26-27, and page 9, lines 15-18.

Support for the amendments to claims 53, 54, and 58 may be found at page 9, line 22 through page 10, line 2.

Support for the amendments to claim 59 may be found at page 7, lines 21-25, and in Table 1, page 8.

B. New claims 60-96

New claims 60-96 have been added. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Support for new claims 60 and 61 may be found at page 7, lines 21-25.

Support for new claims 62-81 may be found at page 7, lines 21-28; Table 1, page 8; and page 9, lines 1-18.

Support for new claims 82-84 may be found at page 7, lines 21-25 and in Table 1, page 8.

Support for new claims 85-87 may be found at page 7, lines 21-28; Table 1, page 8; and page 9, lines 1-18.

Support for new claims 88-90 may be found at page 9, line 22 through page 10, line 2.

Support for new claim 91 may be found at page 7, lines 21-28; Table 1, page 8; and page 9, lines 1-18.

Support for new claim 92 may be found at page 9, line 22 through page 10, line 2.

Support for new claim 93 may be found at page 7, lines 21-28; Table 1, page 8; and page 9, lines 1-18.

Support for new claim 94 may be found at page 9, line 22 through page 10, line 2.

Support for new claim 95 may be found at page 7, lines 21-28; Table 1, page 8; and page 9, lines 1-18.

Support for new claim 96 may be found at page 9, line 22 through page 10, line 2.

II. §102(b) rejections

A. **Motier et al.**

Reconsideration is respectfully requested of the rejection of claims 1-59 under §102(b) as anticipated by Motier et al., U.S. Pat. No. 3,884,856.

Claim 1, as amended, is directed to a film-forming composition comprising a continuous aqueous phase and a dispersed phase. The dispersed phase comprises (i) a particulate polymer or emulsified liquid prepolymer, and (ii) a coalescent aid comprising an ester having the formula RCOOX wherein R is hydrocarbyl or substituted hydrocarbyl and comprises at least two unsaturated carbon-carbon bonds and X is $-\text{CH}_3$, $-\text{C}_2\text{H}_4\text{OH}$, $-\text{C}_2\text{H}_4\text{OC}_2\text{H}_4\text{OH}$, $-\text{C}_3\text{H}_6\text{OH}$, or $-\text{C}_3\text{H}_6\text{OC}_3\text{H}_6\text{OH}$.

Motier et al. describe compositions suitable for electrocoating at high voltages. These compositions are prepared by dispersing in water (a) an at least partially neutralized partial ester of a styrene-maleic anhydride copolymer resin esterified to from about 25% to 125% half ester with an aliphatic alcohol having from about 1 to about 30 carbon atoms; and (b) an oxidatively cross-linkable carboxyl functional **epoxy resin which has been previously esterified with a fatty acid or acids**.

Although Motier et al. disclose a film-forming composition which comprises an ester derived from a fatty acid, Motier et al.'s ester is distinguishable from the ester required by claim 1. Claim 1 requires that the head of the ester ("X") be $-\text{CH}_3$, $-\text{C}_2\text{H}_4\text{OH}$, $-\text{C}_2\text{H}_4\text{OC}_2\text{H}_4\text{OH}$, $-\text{C}_3\text{H}_6\text{OH}$, or $-\text{C}_3\text{H}_6\text{OC}_3\text{H}_6\text{OH}$. In contrast, the head of Motier et al.'s ester is an epoxy resin.

Claims 2-59 depend from claim 1, and are not anticipated by Motier et al. for the same reasons as those stated with respect to claim 1.

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B. Craig

Reconsideration is respectfully requested of the rejection of claims 1-59 under §102(b) as anticipated by Craig, U.S. Pat. No. 4,966,939.

Craig discloses aqueous polyacrylate dispersions comprising a resin formed by the co-polymerization of acrylic esters, methacrylic esters or mixtures thereof with at least one substantially completely water-soluble monomer having conjugated unsaturation. As an example of these substantially completely water-soluble monomers having conjugated unsaturation, Craig identifies (among many other alternatives) hydroxyalkyl esters and sulfoalkyl esters of linoleic and other acids.

Thus, in the film-forming compositions which he describes, Craig does not include an ester having the formula RCOOX wherein X is $-\text{CH}_3$, $-\text{C}_2\text{H}_4\text{OH}$, $-\text{C}_2\text{H}_4\text{OC}_2\text{H}_4\text{OH}$, $-\text{C}_3\text{H}_6\text{OH}$, or $-\text{C}_3\text{H}_6\text{OC}_3\text{H}_6\text{OH}$. Rather, he discloses a resin which is formed by the co-polymerization of two or more monomers (one of which may be a hydroxyalkyl ester of linoleic acid); this resin is then incorporated into a polyacrylate dispersion, i.e., a film-forming composition. In forming these dispersions, Craig must add a traditional coalescent aid such as diethylene glycol monobutyl ether acetate, see Example 8. Thus, Craig does not describe every element of claim 1, and does not anticipate claim 1.

Claims 2-59 depend from claim 1, and are not anticipated by Craig for the same reasons as those stated with respect to claim 1.

III. §102(e) rejections

A. Bumanlag

Reconsideration is respectfully requested of the rejection of claims 1-59 under §102(e) as anticipated by Bumanlag, U.S. Pat. No. 5,753,742.

Bumanlag describes high-solids aqueous emulsions which are said to be useful in the preparation of sealant, caulk, adhesive and coating compositions. Among other things, these compositions contain an emulsifier. Bumanlag provides a list of exemplary emulsifiers; among them are ethylene oxide condensate of linoleic acid, lauric acid, or caproic acid. See col. 5, lines 23-24.

The ethylene oxide condensates of linoleic acid which Bumanlag suggests for use as an emulsifier do not correspond to the ester required by claim 1. As described in greater detail in the declaration of Paul D. Bloom which is being filed along with this amendment, a suitable emulsifier in Bumanlag's oil-in-water composition would have an HLB value of at least 8. In contrast, the methyl, ethylene glycol, diethylene glycol, propylene glycol and dipropylene glycol esters of linoleic acid each have an HLB value

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of less than 8. Consequently, Bumanlag was not describing the use of the methyl, ethylene glycol, diethylene glycol, propylene glycol and dipropylene glycol esters of linoleic acid as an emulsifier since each of these have an HLB value less than 8. Instead, he was suggesting the use of condensates having a greater number of ethylene oxide units and thus a greater HLB value.

Claims 2-59 depend from claim 1, and are not anticipated by Bumanlag for the same reasons as those stated with respect to claim 1.

B. Rauls

Reconsideration is respectfully requested of the rejection of claims 1-59 under §102(e) as anticipated by Rauls, U.S. Pat. No. 6,156,833.

Rauls describes emulsification bases comprising soy methyl ester as the carrier, and also comprising water, 2-amino-2-methyl-1-propanol, and an acrylic acid polymer thickener. In certain embodiments are disclosed compositions comprising these emulsification bases and further comprising linseed alkyd and acrylic emulsion.

Applicants submit with this Amendment a declaration under 37 CFR 1.131 by inventors Michael R. Van De Mark and Nantana Jiratumnukul averring to a date of invention before February 12, 1999, the date identified on U.S. Patent No. 6,156,833 as being the earliest possible priority date of the information disclosed in U.S. Patent No. 6,156,833. As shown in that declaration, Applicants prepared paint formulations (i.e., film-forming compositions) comprising the methyl ester of soy oil as the coalescent aid and further comprising either FLEXBOND 325 (vinyl acetate latex) or UCAR 379G (vinyl acrylic latex) prior to February, 1999. Thus, Rauls is not properly citable against the invention defined by claim 1.

For the same reasons, Rauls is not properly citable against the invention defined by claims 2-59, which depend from claim 1.

§103(a) rejection

Reconsideration is respectfully requested of the rejection of claims 1-59 under §103(a) as unpatentable over Motier et al. or Craig or Bumanlag or Rauls.

For the reasons indicated above, Rauls is not properly citable against the invention defined by claims 1-59.

Motier et al. and Craig lead a person of ordinary skill away from and not to the claimed invention. Each uses conventional coalescent aids, implying there is no reason or need for improvement. Although they include the residues of fatty acids in their compositions, Motier et al. and Craig suggest incorporating these residues in the resins.

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They do not disclose or suggest incorporating the fatty acid residue in a coalescent aid. If anything, they suggest the contrary by using conventional coalescent aids in combination with their novel resins.

Bumanlag similarly leads a person of ordinary skill away from and not to the claimed invention. Bumanlag suggest the use of conventional plasticizers in his formulation, and although ethylene oxide condensates of linoleic acid are identified as one of many possible emulsifiers, the nature of Bumanlag's composition requires an emulsifier with an HLB value greater than 8. Thus, ethylene oxide condensates of linoleic acid other than the methyl, ethylene glycol, diethylene glycol, propylene glycol or dipropylene glycol esters must be intended.

To establish a *prima facie* case of obviousness, three basic criteria may be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Office states that it would be obvious to one of ordinary skill in the art to formulate aqueous compositions according to these references (Motier et al.) comprising a polymer in the dispersed phase and the required ester *disclosed by these references* also in the dispersed phase (Paper No. 6, page 3). As discussed above, however, the cited references do not individually, or in combination, suggest the invention defined by claims 1-59.

The cited references also fail, individually and in combination, to suggest the invention defined by claim 1 and each of the claims which depend therefrom. Each of these claims requires that the coalescent aid comprise the defined ester. In addition, the dependant claims introduce a variety of requirements which are not disclosed by the cited references. For example, claim 3 further requires that the "R" and "X" moieties of the ester, in combination, comprise no more than about 35 carbon atoms. Claim 20 further requires that the coalescent aid be a mixture of materials with the ester being at least about 5 wt.% of the mixture. Claim 39 further requires that at least 90 wt.% of the ester be dissolved in the particulate polymer. These combinations of features are neither disclosed nor suggested by the cited references.

VERSION WITH MARKINGS SHOWING CHANGES MADE

Claims 4, 13, and 57 have been cancelled.

Claim 1 is amended as follows:

1. (once amended) A film-forming composition comprising a continuous aqueous phase and a dispersed phase, the dispersed phase comprising (i) a particulate polymer or emulsified liquid prepolymer, and (ii) a coalescent aid comprising an ester having the formula RCOOX wherein **R is [and X are independently]** hydrocarbyl or substituted hydrocarbyl and **[at least one of R and X] comprises at least two unsaturated carbon-carbon bonds and X is -CH₃, -C₂H₄OH, -C₂H₄OC₂H₄OH, -C₃H₆OH, or -C₃H₆OC₃H₆OH.**

Claim 2 is amended as follows:

2. (once amended) The film-forming composition of claim 1 wherein R **[and X independently]** comprises about **[1] 9** to about **[30] 25** carbon atoms.

Claim 3 is amended as follows:

3. (once amended) The film-forming composition of claim 1 wherein R and X, **[independently comprise about 1 to about 30 carbon atoms and,]** in combination, contain no more than about 35 carbon atoms.

Claim 6 is amended as follows:

6. (once amended) The film-forming composition of claim 1 wherein R **[or X]** is substituted hydrocarbyl and the hydrocarbyl substituent is selected from the group consisting of ketones, esters, alcohols, amides, halogens, urea, urethane, and nitrile substituents.

Claim 7 is amended as follows:

7. (once amended) The film-forming composition of claim 1 wherein the ester is prepared by the **[transesterification]** reaction between a fatty acid and a glycol **selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol and dipropylene glycol.**

Claim 8 is amended as follows:

8. (once amended) The film-forming composition of claim [1] 61 wherein the ester is [an ester] derived from corn oil, sunflower oil, safflower oil, soybean oil, canola oil, or linseed oil.

Claim 9 is amended as follows:

9. (once amended) The film-forming composition of claim [1] 8 wherein the ester is [an ethylene glycol monoester] derived from a fatty acid of [soybean oil] corn oil.

Claim 10 is amended as follows:

10. (once amended) The film-forming composition of claim [1] 8 wherein the ester is [a diethylene glycol monoester] derived from a fatty acid of [soybean oil] sunflower oil.

Claim 11 is amended as follows:

11. (once amended) The film-forming composition of claim [1] 8 wherein the ester is [a propylene glycol monoester] derived from a fatty acid of [soybean oil] safflower oil.

Claim 12 is amended as follows:

12. (once amended) The film-forming composition of claim [1] 8 wherein the ester is [a dipropylene glycol monoester] derived from a fatty acid of soybean oil.

Claim 16 is amended as follows:

16. (once amended) The film-forming composition of claim [1] 15 wherein the weight of the ester is about 0.1 % to about 4 % of the weight of the particulate polymer or liquid pre-polymer.

Claim 18 is amended as follows:

18. (once amended) The film-forming composition of claim 17 wherein the ester is an ester derived from a fatty acid of corn oil, sunflower oil, safflower oil, soybean oil, canola oil, or linseed oil.

Claim 19 is amended as follows:

19. (once amended) The film-forming composition of claim 1 wherein the dispersed or continuous aqueous phase further comprises an additive selected from the

group consisting of wetting aids, dispersants, thickeners, defoaming agents, biocides, algicides, ultra-violet inhibitors, flow agents, levelling agents, reology modifiers, freeze thaw stabilizing agents, **pH [Ph]** modifiers, flash rust inhibitors, and biocides.

Claim 34 is amended as follows:

34. (once amended) **[A] The** film-forming composition **of claim 1** comprising at least about 10 wt.% of a continuous aqueous phase, **[and a dispersed phase, the dispersed phase comprising (i) a particulate polymer or emulsified liquid prepolymer, and (ii) a coalescent aid comprising an ester derived from a fatty acid contained in an oil found in a plant or animal, the ester having the formula RCOOX wherein R and X are independently hydrocarbyl or substituted hydrocarbyl and at least one of R and X comprises at least two unsaturated carbon-carbon bonds.]**

Claim 39 is amended as follows:

39. (once amended) The film-forming composition of claim 1 wherein **[at least one of] R [and X]** comprises at least two unsaturated carbon-carbon bonds in conjugation and at least 90 wt.% of the ester is dissolved in the particulate polymer or liquid pre-polymer.

Claim 40 is amended as follows:

40. (once amended) The film-forming composition of claim 39 wherein the ester is **[an ethylene glycol monoester, a propylene glycol monoester, or a dipropylene glycol monoester]** derived from a fatty acid of soybean oil **and X is -C₂H₄OH, -C₃H₆OH, or -C₃H₆OC₃H₆OH.**

Claim 41 is amended as follows:

41. (once amended) The film-forming composition of claim 40 wherein the weight of the ester is about 0.1 % to about **[4 %] 50 %** of the weight of the particulate polymer or liquid pre-polymer.

Claim 42 is amended as follows:

42. (once amended) The film-forming composition of claim 39 wherein the weight of the ester is about 0.1 % to about **[4 %] 50 %** of the weight of the particulate polymer or liquid pre-polymer.

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Claim 43 is amended as follows:

43. (once amended) The film-forming composition of claim 39 wherein the ester is an ester derived from a fatty acid of corn oil, sunflower oil, safflower oil, soybean oil, canola oil, or linseed oil.

Claim 44 is amended as follows:

44. (once amended) The film-forming composition of claim 43 wherein the weight of the ester is about 0.1 % to about [4 %] 50 % of the weight of the particulate polymer or liquid pre-polymer.

Claim 45 is amended as follows:

45. (once amended) The film-forming composition of claim 20 wherein the ester is an ester derived from a fatty acid of corn oil, sunflower oil, safflower oil, soybean oil, canola oil, or linseed oil.

Claim 46 is amended as follows:

46. (once amended) The film-forming composition of claim 45 wherein the weight of the ester is about 0.1 % to about [4 %] 50 % of the weight of the particulate polymer or liquid pre-polymer.

Claim 47 is amended as follows:

47. (once amended) The film-forming composition of claim [20] 45 wherein the ester is [an ethylene glycol monoester, a propylene glycol monoester or a dipropylene glycol monoester] derived from a fatty acid of soybean oil and X is -C₂H₄OH, -C₃H₆OH, or -C₃H₆OC₃H₆OH.

Claim 48 is amended as follows:

48. (once amended) The film-forming composition of claim 47 wherein the weight of the ester is about 0.1 % to about [4 %] 50 % of the weight of the particulate polymer or liquid pre-polymer.

Claim 50 is amended as follows:

50. (once amended) The film-forming composition of claim 49 wherein R [and X independently] comprises about [1] 9 to about [30] 25 carbon atoms and R and X, in combination, contain no more than about 35 carbon atoms.

Claim 51 is amended as follows:

51. (once amended) The film-forming composition of claim 49 wherein the ester is an ester derived from a fatty acid of corn oil, sunflower oil, safflower oil, soybean oil, canola oil, or linseed oil.

Claim 52 is amended as follows:

52. (once amended) The film-forming composition of claim 3 wherein X is [X'-OH and X' is a hydrocarbyl or substituted hydrocarbyl radical comprising 1 to 8 carbon atoms] -CH₂CH₂OH, -CH₂CH₂OCH₂CH₂OH, -CH₂CH₂CH₂OH, or -CH₂CH₂CH₂OCH₂CH₂CH₂OH.

Claim 53 is amended as follows:

53. (once amended) The film-forming composition of claim 52 wherein the weight of the ester is about 0.1 % to about [4 %] 50 % of the weight of the particulate polymer or liquid pre-polymer.

Claim 54 is amended as follows:

54. (once amended) The film-forming composition of claim 3 wherein the weight of the ester is about 0.1 % to about [4 %] 50 % of the weight of the particulate polymer or liquid pre-polymer.

Claim 58 is amended as follows:

58. (once amended) The film-forming composition of claim [57] 52 wherein the weight of the ester is about 0.1 % to about [4 %] 50 % of the weight of the particulate polymer or liquid pre-polymer.

Claim 59 is amended as follows:

59. (once amended) The film-forming composition of claim 58 wherein the ester is [an ester] derived from a fatty acid of corn oil, sunflower oil, safflower oil, soybean oil, canola oil, or linseed oil.

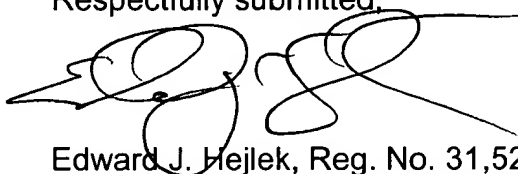
New claims 60-96 have been added.

CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that claims 1-96 distinguish patentably over the art of record under 35 U.S.C. §102(b) and §102(e) and 35 U.S.C. §103(a). Favorable consideration and early allowance of all pending claims is requested.

A check in the amount of \$2,582.00 (\$1,970.00 for the extension of time, \$612.00 for the additional claims fee) is enclosed. The Commissioner is hereby authorized to charge to any deficiency or overpayment of any required fee to Deposit Account No 19-1345.

Respectfully submitted,

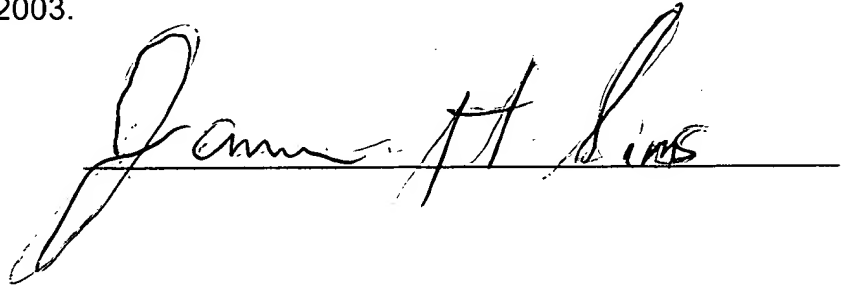


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CERTIFICATE OF DELIVERY

I certify that the foregoing AMENDMENT B in the application of Van de Mark et al., Serial No. 09/532,839, Confirmation No. 7157, filed March 21, 2000, is being hand delivered by Sterne, Kessler, Goldstein & Fox P.L.L.C, to Examiner Cain, Art Unit 1714 on this 7 day of March, 2003.

A handwritten signature in cursive script, reading "James H. Sims", is written over a horizontal line.